What is claimed is:

1. A method of evaluating whiteness of light emitted from a light source, comprising the steps of:

calculating chroma C, using a method defined by the CIE 1997 Interim Color Appearance Model (Simple Version); and

calculating whiteness W from the chroma C using an equation (1),

$$W = aC + b \cdots (1)$$

where the coefficient a is a negative real number and the coefficient b is a positive real number.

2. The method of Claim 1,

wherein the whiteness W is 100 when the chroma C is 0.

3. The method of Claim 2,

wherein the whiteness W is 50 under a standard illuminant A.

4. The method of Claim 1,

wherein the chroma C is a chroma of the light emitted from the light source, and

the coefficient a is -5.3 and the coefficient b is 100.

5. The method of Claim 1,

wherein the chroma *C* is a chroma of light obtained when the light from the light source is reflected off from a surface of an object whose Munsell value and Munsell chroma is 9.5 and 0, respectively, and

the coefficient *a* is -4.4 and the coefficient *b* is 100.

6. The method of Claim 1,

wherein the chroma is a chroma of light obtained when the light emitted from the light source is reflected off a blank surface of a newspaper, and

the coefficient *a* is -3.3 and the coefficient *b* is 100.

7. A method of evaluating comparative whiteness of light emitted from two light sources, comprising the steps of:

calculating chroma *C*1 of light from a first light source and chroma *C*2 of light from a second light source using a method defined by the CIE 1997 Interim Color Appearance Model(Simple Version); and

calculating comparative whiteness *Wc* from the chroma *C*1 and the chroma C2, using an equation (2),

$$Wc = (C1 - C2) / C1 \cdots (2).$$

8. A light source, being characterized by:

emitting light whose whiteness is no smaller

than 85 and whose visual clarity index is no smaller than 110, the whiteness W being calculated using chroma C of the light and an equation (3),

$$W = -5.3C + 100 \quad \cdots (3)$$

wherein the chroma C is calculated using a method defined by the CIE 1997 Interim Color Appearance Model(Simple Version)

9. The light source of Claim 8,

wherein the light source is a fluorescent lamp containing a phosphor layer, the light source emitting light whose peak emissions are in four wavelength ranges of 440nm to 470nm, 505nm to 530nm, 540nm to 570nm, and 600nm to 620nm; and

wherein a ratio of a radiant energy Qv to a radiant energy Qg satisfies an inequality (4) for a correlated color temperature T[K]

$$Qg/Qv \geqq -0.11 \times 10^4/T + 0.30 \quad \cdots (4)$$

wherein the radiant energy Qv is in a wavelength of 380nm to 780nm and radiant energy Qg in a wavelength of 505nm to 530nm.

10. The light source of Claim 9,

wherein the phosphor layer contains, as major components:

a phosphor containing bivalent Europium as an

emission center and having a peak emission at a wavelength range of 440nm to 470nm;

a phosphor containing bivalent manganese as an emission center and having a peak emission at a wavelength range of 505nm to 530nm;

a phosphor containing trivalent terbium as an emission center and having a peak emission at a wavelength range of 540nm to 570nm; and

a phosphor containing trivalent europium as an emission center and having a peak emission at a wavelength range of 600nm to 620nm.

11. The light source of Claim 10,

wherein the phosphor containing the bivalent europium as an emission center and having a peak emission at a wavelength range of 440nm to 470nm is composed of at least one of:

$BaMgAl_{10}O_{17}:Eu^{2+}$;

$BaMgAl_{10}O_{17}:Eu^{2+}, Mn^{2+}$; and

$(Ba, Ca, Sr, Mg)_{10}(PO_4)_6Cl_2:Eu^{2+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

12. The light source of Claim 10,

wherein the phosphor containing the bivalent manganese

as an emission center and having a peak emission at a wavelength range of 505nm to 530nm is composed of at least one of:

$BaMgAl_{10}O_{17}:Eu^{2+},Mn^{2+}$;

$CeMgAl_{11}O_{19}:Mn^{2+}$;

Ce (Mg, Zn) $Al_{11}O_{19}:Mn^{2+}$;

$Zn_2SiO_4:Mn^{2+}$; and

$CeMgAl_{11}O_{19}:Tb^{3+},Mn^{2+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

13. The light source of Claim 10,

wherein the phosphor containing the trivalent terbium as an emission center and having an emission peak at a wavelength range of 540nm to 570nm is composed of at least one of:

$LaPO_4:Ce^{3+},Tb^{3+}$; and

$CeMgAl_{11}O_{19}:Tb^{3+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

14. The light source of Claim 10,

wherein the phosphor containing the trivalent europium as an emission center and having an emission peak at a wavelength range of 600nm to 620nm is composed of at least one of:

$Y_2O_3:Eu^{3+}$; and

$Gd_2O_3:Eu^{3+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

15. The light source of Claim 9,

wherein the phosphor layer has, as major components:

a phosphor containing both bivalent europium and bivalent manganese as emission centers and having emission peaks both at a wavelength range of 440nm to 470nm and at 505nm to 530nm;

a phosphor containing trivalent terbium as an emission center and having an emission peak at a wavelength range of 540nm to 570nm; and

a phosphor containing trivalent europium as an emission center and having an emission peak at a wavelength range of 600nm to 620nm.

16. The light source of Claim 15,

wherein the phosphor containing the bivalent europium and bivalent manganese as emission centers and having emission peaks both at a wavelength range of 440nm to 470nm and at 505nm to 530nm is

$BaMgAl_{10}O_{17}:Eu^{2+},Mn^{2+}$

wherein a compound on the left side denotes a host crystal,

and ions on the right side are emission centers contained in the phosphor.

17. The light source of Claim 15,

wherein the phosphor containing the trivalent terbium as an emission center and having an emission peak at a wavelength range of 540nm to 570nm is composed of at least one of:

$LaPO_4:Ce^{3+},Tb^{3+}$; and

$CeMgAl_{11}O_{19}:Tb^{3+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

18. The light source of Claim 15,

wherein the phosphor containing the trivalent europium as an emission center and having an emission peak at a wavelength range of 600nm to 620nm is composed of at least one of:

$Y_2O_3:Eu^{3+}$; and

$Gd_2O_3:Eu^{3+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

19. The light source of Claim 9,

wherein the phosphor layer contains, as major

components:

a phosphor containing bivalent europium as an emission center and having an emission peak at 440nm to 470nm;

a phosphor containing both trivalent terbium and bivalent manganese as emission centers and having emission peaks both at a wavelength range of 505nm to 530nm and at 540nm to 570nm; and

a phosphor containing trivalent europium as an emission center and having an emission peak at 600nm.

20. The light source of Claim 19,

wherein the phosphor containing the bivalent europium as an emission center and having a peak emission at a wavelength range of 440nm to 470nm is composed of at least one of:

$BaMgAl_{10}O_{17}:Eu^{2+}$;

$BaMgAl_{10}O_{17}:Eu^{2+}, Mn^{2+}$; and

$(Ba, Ca, Sr, Mg)_{10}(PO_4)_6Cl_2:Eu^{2+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

21. The light source of Claim 19,

wherein the phosphor containing the trivalent terbium and the bivalent manganese as emission centers and having peak emissions both at a wavelength range of 505nm to 530nm and at

540nm to 570nm is

$CeMgAl_{11}O_{19}:Tb^{3+},Mn^{2+}$

wherein a compound on the left side denotes a host crystal, and ions on the right side are emission centers contained in the phosphor.

22. The light source of Claim 19,

wherein the phosphor containing the trivalent europium as an emission center and having an emission peak at a wavelength range of 600nm to 620nm is composed of at least one of:

$Y_2O_3:Eu^{3+}$; and

$Gd_2O_3:Eu^{3+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

23. A light source, being characterized by:

emitting light whose whiteness W is no smaller than 85, and whose visual clarity index is no smaller than 115, the whiteness W being calculated using chroma C of the light and an equation(5)

$$W = -5.3C + 100 \cdots (5)$$

wherein the chroma C is calculated using a method defined by the CIE 1997 Interim Color Appearance Model (Simple Version).

24. The light source of Claim 23,

wherein the light source is a fluorescent lamp containing a phosphor layer, the light source emitting light whose peak emissions are in four wavelength ranges of 440nm to 470nm, 505nm to 530nm, 540nm to 570nm, and 600nm to 620nm; and

wherein a ratio of a radiant energy Qv to a radiant energy Qg satisfies an inequality (6) for a correlated color temperature T[K]

$$Qg/Qv \geqq -0.11\times10^4/T+0.30 \quad \cdots (6)$$

wherein the radiant energy Qv is in a wavelength of 380nm to 780nm and radiant energy Qg in a wavelength of 505nm to 530nm.

25. The light source of Claim 24,

wherein the phosphor layer contains, as major components:

a phosphor containing bivalent Europium as an emission center and having a peak emission at a wavelength range of 440nm to 470nm;

a phosphor containing bivalent manganese as an emission center and having a peak emission at a wavelength range of 505nm to 530nm;

a phosphor containing trivalent terbium as an emission center and having a peak emission at a wavelength range of 540nm to 570nm; and

a phosphor containing trivalent europium as an emission

center and having a peak emission at a wavelength range of 600nm to 620nm.

26. The light source of Claim 25,

wherein the phosphor containing the bivalent europium as an emission center and having a peak emission at a wavelength range of 440nm to 470nm is composed of at least one of:

$BaMgAl_{10}O_{17}:Eu^{2+}$;

$BaMgAl_{10}O_{17}:Eu^{2+}$, Mn^{2+} ; and

$(Ba, Ca, Sr, Mg)_{10}(PO_4)_6Cl_2:Eu^{2+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

27. The light source of Claim 25,

wherein the phosphor containing the bivalent manganese as an emission center and having a peak emission at a wavelength range of 505nm to 530nm is composed of at least one of:

$BaMgAl_{10}O_{17}:Eu^{2+},Mn^{2+}$;

$CeMgAl_{11}O_{19}:Mn^{2+}$;

Ce (Mg, Zn) $Al_{11}O_{19}:Mn^{2+}$;

$Zn_2SiO_4:Mn^{2+}$; and

$CeMgAl_{11}O_{19}:Tb^{3+},Mn^{2+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained

in the phosphors.

28. The light source of Claim 25,

wherein the phosphor containing the trivalent terbium as an emission center and having an emission peak at a wavelength range of 540nm to 570nm is composed of at least one of:

$LaPO_4:Ce^{3+},Tb^{3+}$; and

$CeMgAl_{11}O_{19}:Tb^{3+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

29. The light source of Claim 25,

wherein the phosphor containing the trivalent europium as an emission center and having an emission peak at a wavelength range of 600nm to 620nm is composed of at least one of:

$Y_2O_3:Eu^{3+}$; and

$Gd_2O_3:Eu^{3+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

30. The light source of Claim 24,

wherein the phosphor layer has, as major components:

a phosphor containing both bivalent europium and bivalent

manganese as emission centers and having emission peaks both at a wavelength range of 440nm to 470nm and at 505nm to 530nm;

a phosphor containing trivalent terbium as an emission center and having an emission peak at a wavelength range of 540nm to 570nm; and

a phosphor containing trivalent europium as an emission center and having an emission peak at a wavelength range of 600nm to 620nm.

31. The light source of Claim 30,

wherein the phosphor containing the bivalent europium and bivalent manganese as emission centers and having emission peaks both at a wavelength range of 440nm to 470nm and at 505nm to 530nm is

$BaMgAl_{10}O_{17}:Eu^{2+},Mn^{2+}$

wherein a compound on the left side denotes a host crystal, and ions on the right side are emission centers contained in the phosphor.

32. The light source of Claim 30,

wherein the phosphor containing the trivalent terbium as an emission center and having an emission peak at a wavelength range of 540nm to 570nm is composed of at least one of:

$LaPO_4:Ce^{3+},Tb^{3+}$; and

$CeMgAl_{11}O_{19}:Tb^{3+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

33. The light source of Claim 30,

wherein the phosphor containing the trivalent europium as an emission center and having an emission peak at a wavelength range of 600nm to 620nm is composed of at least one of:

$Y_2O_3:Eu^{3+}$; and

$Gd_2O_3:Eu^{3+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

34. The light source of Claim 24,

wherein the phosphor containing the bivalent europium as an emission center and having a peak emission at a wavelength range of 440nm to 470nm is composed of at least one of:

$BaMgAl_{10}O_{17}:Eu^{2+}$;

$BaMgAl_{10}O_{17}:Eu^{2+}$, Mn^{2+} ; and

$(Ba, Ca, Sr, Mg)_{10}(PO_4)_6Cl_2:Eu^{2+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

35. The light source of Claim 34,

wherein the phosphor containing the bivalent europium as an emission center and having a peak emission at a wavelength range of 440nm to 470nm is composed of at least one of:

$BaMgAl_{10}O_{17}:Eu^{2+}$;

$BaMgAl_{10}O_{17}:Eu^{2+}$, Mn^{2+} ; and

$(Ba, Ca, Sr, Mg)_{10}(PO_4)_6Cl_2:Eu^{2+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

36. The light source of Claim 34,

wherein the phosphor containing the trivalent terbium and the bivalent manganese as emission centers and having peak emissions both at a wavelength range of 505nm to 530nm and at 540nm to 570nm is

$CeMgAl_{11}O_{19}:Tb^{3+},Mn^{2+}$

wherein a compound on the left side denotes a host crystal, and ions on the right side are emission centers contained in the phosphor.

37. The light source of Claim 34,

wherein the phosphor containing the trivalent europium as an emission center and having an emission peak at a wavelength range of 600nm to 620nm is composed of at least one of:

$Y_2O_3:Eu^{3+}$; and

$Gd_2O_3:Eu^{3+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

38. A light source, being characterized by:

emitting light whose whiteness is no smaller than 65 obtained when the light is reflected from a blank surface of a newspaper, the whiteness being calculated using chroma C of the light and an equation (7),

$$W = -3.3C + 100 \cdots (7)$$

wherein the chroma C is calculated using a method defined by the CIE 1997 Interim Color Appearance Model (Simple Version);

emitting light whose chromaticity is, on the CIE 1931 chromaticity diagram, in a range expressed by two equations (8) and (9); and

emitting light whose visual clarity index is no smaller than 110:

$$y \geqq -2.63x^2 + 2.63x - 0.263 \cdots (8)$$

$$y \geqq -3.09x + 1.22 \cdots (9).$$

39. The light source of Claim 38,

wherein the light source is a fluorescent lamp containing a phosphor layer, the light source emitting light

whose peak emissions are in four wavelength ranges of 440nm to 470nm, 505nm to 530nm, 540nm to 570nm, and 600nm to 620nm; and

wherein a ratio of a radiant energy Qv to a radiant energy Qg satisfy an inequality (4) for a correlated color temperature T[K]

$$Qg/Qv \geqq -0.11\times10^{4}/T+0.30 \quad \cdots (4)$$

wherein the radiant energy Qv is in a wavelength of 380nm to 780nm and radiant energy Qg in a wavelength of 505nm to 530nm.

40. The light source of Claim 39,

wherein the phosphor layer contains, as major components:

a phosphor containing bivalent europium as an emission center and having a peak emission at a wavelength range of 440nm to 470nm;

a phosphor containing bivalent manganese as an emission center and having a peak emission at a wavelength range of 505nm to 530nm;

a phosphor containing trivalent terbium as an emission center and having a peak emission at a wavelength range of 540nm to 570nm; and

a phosphor containing trivalent europium as an emission center and having a peak emission at a wavelength range of 600nm to 620nm.

41. The light source of Claim 40,

wherein the phosphor containing the bivalent europium as an emission center and having a peak emission at a wavelength range of 440nm to 470nm is composed of at least one of:

$BaMgAl_{10}O_{17}:Eu^{2+}$;

$BaMgAl_{10}O_{17}:Eu^{2+}$, Mn^{2+} ; and

$(Ba, Ca, Sr, Mg)_{10}(PO_4)_6Cl_2:Eu^{2+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

42. The light source of Claim 40,

wherein the phosphor containing the bivalent manganese as an emission center and having a peak emission at a wavelength range of 505nm to 530nm is composed of at least one of:

$BaMgAl_{10}O_{17}:Eu^{2+},Mn^{2+}$;

$CeMgAl_{11}O_{19}:Mn^{2+}$;

$Ce\ (Mg, Zn)\ Al_{11}O_{19}:Mn^{2+}$;

$Zn_2SiO_4:Mn^{2+}$; and

$CeMgAl_{11}O_{19}:Tb^{3+},Mn^{2+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

43. The light source of Claim 40,

wherein the phosphor containing the trivalent terbium as an emission center and having an emission peak at a wavelength range of 540nm to 570nm is composed of at least one of:

$LaPO_4:Ce^{3+},Tb^{3+}$; and

$CeMgAl_{11}O_{19}:Tb^{3+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

44. The light source of Claim 40,

wherein the phosphor containing the trivalent europium as an emission center and having an emission peak at a wavelength range of 600nm to 620nm is composed of at least one of:

$Y_2O_3:Eu^{3+}$; and

$Gd_2O_3:Eu^{3+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

45. The light source of Claim 39,

wherein the phosphor layer has, as major components:

a phosphor containing both bivalent europium and bivalent manganese as emission centers and having emission peaks both at a wavelength range of 440nm to 470nm and at 505nm to 530nm;

a phosphor containing trivalent terbium as an emission

center and having an emission peak at a wavelength range to 570nm; and

a phosphor containing trivalent europium as an emis center and having an emission peak at a wavelength range of 60(to 620nm.

46. The light source of Claim 45,

wherein the phosphor containing the bivalent europium and bivalent manganese as emission centers and having emission peaks both at a wavelength range of 440nm to 470nm and at 505nm to 530nm is

$BaMgAl_{10}O_{17}:Eu^{2+},Mn^{2+}$

wherein a compound on the left side denotes a host crystal, and ions on the right side are emission centers contained in the phosphor.

47. The light source of Claim 45,

wherein the phosphor containing the trivalent terbium as an emission center and having an emission peak at a wavelength range of 540nm to 570nm is composed of at least one of:

$LaPO_4:Ce^{3+},Tb^{3+}$; and

$CeMgAl_{11}O_{19}:Tb^{3+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

48. The light source of Claim 45,

wherein the phosphor containing the trivalent europium as an emission center and having an emission peak at a wavelength range of 600nm to 620nm is composed of at least one of:

$Y_2O_3:Eu^{3+}$; and

$Gd_2O_3:Eu^{3+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

49. The light source of Claim 39,

wherein the phosphor layer contains, as major components:

a phosphor containing bivalent europium as an emission center and having an emission peak at 440nm to 470nm;

a phosphor containing both trivalent terbium and bivalent manganese as emission centers and having emission peaks both at a wavelength range of 505nm to 530nm and at 540nm to 570nm; and

a phosphor containing trivalent europium as an emission center and having an emission peak at 600nm.

50. The light source of Claim 49,

wherein the phosphor containing the bivalent europium as an emission center and having a peak emission at a wavelength

range of 440nm to 470nm is composed of at least one of:

$BaMgAl_{10}O_{17}:Eu^{2+}$;

$BaMgAl_{10}O_{17}:Eu^{2+}$, Mn^{2+} ; and

$(Ba, Ca, Sr, Mg)_{10}(PO_4)_6Cl_2:Eu^{2+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

51. The light source of Claim 49,

wherein the phosphor containing the trivalent terbium and the bivalent manganese as emission centers and having peak emissions both at a wavelength range of 505nm to 530nm and at 540nm to 570nm is

$CeMgAl_{11}O_{19}:Tb^{3+},Mn^{2+}$

wherein a compound on the left side denotes a host crystal, and ions on the right side are emission centers contained in the phosphor.

52. The light source of Claim 49,

wherein the phosphor containing the trivalent europium as an emission center and having an emission peak at a wavelength range of 600nm to 620nm is composed of at least one of:

$Y_2O_3:Eu^{3+}$; and

$Gd_2O_3:Eu^{3+}$

wherein compounds on the left side denote host crystals,

and ions on the right side are emission centers contained in the phosphors.

53. A light source, characterized by:

emitting light whose whiteness W is no smaller than 65 when the light is reflected from a blank surface of a newspaper, the whiteness W being calculated using chroma C of the light and an equation (11),

$$W = -3.3C + 100 \cdots (11)$$

wherein the chroma C is calculated using a method defined by the CIE 1997 Interim Color Appearance Model(Simple Version);

emitting light whose chromaticity is, on the CIE 1931 chromaticity diagram, in a range expressed by two equations (12) and (13); and

emitting light whose visual clarity index is no smaller than 115:

$$y \geqq -2.63x^2 + 2.63x - 0.263 \cdots (12)$$

$$y \geqq -3.09x + 1.22 \cdots (13).$$

54. The light source of Claim 53,

wherein the light source is a fluorescent lamp containing a phosphor layer, the light source emitting light whose peak emissions are in four wavelength ranges of 440nm to 470nm, 505nm to 530nm, 540nm to 570nm, and 600nm to 620nm; and

wherein a ratio of a radiant energy Qv to a radiant

energy Qg satisfy an inequality (14) for a correlated color temperature $T[K]$

$$Qg/Qv \geqq -0.11\times10^{4}/T+0.30 \quad \cdots (14)$$

wherein the radiant energy Qv is in a wavelength of 380nm to 780nm and radiant energy Qg in a wavelength of 505nm to 530nm.

55. The light source of Claim 54,

wherein the phosphor layer contains, as major components:

a phosphor containing bivalent Europium as an emission center and having a peak emission at a wavelength range of 440nm to 470nm;

a phosphor containing bivalent manganese as an emission center and having a peak emission at a wavelength range of 505nm to 530nm;

a phosphor containing trivalent terbium as an emission center and having a peak emission at a wavelength range of 540nm to 570nm; and

a phosphor containing trivalent europium as an emission center and having a peak emission at a wavelength range of 600nm to 620nm.

56. The light source of Claim 55,

wherein the phosphor containing the bivalent europium as an emission center and having a peak emission at a wavelength

range of 440nm to 470nm is composed of at least one of:

$BaMgAl_{10}O_{17}:Eu^{2+}$;

$BaMgAl_{10}O_{17}:Eu^{2+}$, Mn^{2+} ; and

$(Ba, Ca, Sr, Mg)_{10}(PO_4)_6Cl_2:Eu^{2+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

57. The light source of Claim 55,

wherein the phosphor containing the bivalent manganese as an emission center and having a peak emission at a wavelength range of 505nm to 530nm is composed of at least one of:

$BaMgAl_{10}O_{17}:Eu^{2+},Mn^{2+}$;

$CeMgAl_{11}O_{19}:Mn^{2+}$;

$Ce\ (Mg, Zn)\ Al_{11}O_{19}:Mn^{2+}$;

$Zn_2SiO_4:Mn^{2+}$; and

$CeMgAl_{11}O_{19}:Tb^{3+},Mn^{2+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

58. The light source of Claim 55,

wherein the phosphor containing the trivalent terbium as an emission center and having an emission peak at a wavelength range of 540nm to 570nm is composed of at least one of:

$LaPO_4:Ce^{3+},Tb^{3+}$; and

$CeMgAl_{11}O_{19}:Tb^{3+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

59. The light source of Claim 55,

wherein the phosphor containing the trivalent europium as an emission center and having an emission peak at a wavelength range of 600nm to 620nm is composed of at least one of:

$Y_2O_3:Eu^{3+}$; and

$Gd_2O_3:Eu^{3+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

60. The light source of Claim 54,

wherein the phosphor layer has, as major components:

a phosphor containing both bivalent europium and bivalent manganese as emission centers and having emission peaks both at a wavelength range of 440nm to 470nm and at 505nm to 530nm;

a phosphor containing trivalent terbium as an emission center and having an emission peak at a wavelength range of 540nm to 570nm; and

a phosphor containing trivalent europium as an emission

center and having an emission peak at a wavelength range of 600nm to 620nm.

61. The light source of Claim 60,

wherein the phosphor containing the bivalent europium and bivalent manganese as emission centers and having emission peaks both at a wavelength range of 440nm to 470nm and at 505nm to 530nm is

$BaMgAl_{10}O_{17}:Eu^{2+},Mn^{2+}$

wherein a compound on the left side denotes a host crystal, and ions on the right side are emission centers contained in the phosphor.

62. The light source of Claim 60,

wherein the phosphor containing the trivalent terbium as an emission center and having an emission peak at a wavelength range of 540nm to 570nm is composed of at least one of:

$LaPO_4:Ce^{3+},Tb^{3+}$; and

$CeMgAl_{11}O_{19}:Tb^{3+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

63. The light source of Claim 60,

wherein the phosphor containing the trivalent europium

as an emission center and having an emission peak at a wavelength range of 600nm to 620nm is composed of at least one of:

$Y_2O_3:Eu^{3+}$; and

$Gd_2O_3:Eu^{3+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

64. The light source of Claim 54,

wherein the phosphor layer contains, as major components:

a phosphor containing bivalent europium as an emission center and having an emission peak at 440nm to 470nm;

a phosphor containing both trivalent terbium and bivalent manganese as emission centers and having emission peaks both at a wavelength range of 505nm to 530nm and at 540nm to 570nm; and

a phosphor containing trivalent europium as an emission center and having an emission peak at 600nm.

65. The light source of Claim 64,

wherein the phosphor containing the bivalent europium as an emission center and having a peak emission at a wavelength range of 440nm to 470nm is composed of at least one of:

$BaMgAl_{10}O_{17}:Eu^{2+}$;

$BaMgAl_{10}O_{17}:Eu^{2+}$, Mn^{2+} ; and

$(Ba, Ca, Sr, Mg)_{10}(PO_4)_6Cl_2:Eu^{2+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

66. The light source of Claim 64,

wherein the phosphor containing the trivalent terbium and the bivalent manganese as emission centers and having peak emissions both at a wavelength range of 505nm to 530nm and at 540nm to 570nm is

$CeMgAl_{11}O_{19}:Tb^{3+},Mn^{2+}$

wherein a compound on the left side denotes a host crystal, and ions on the right side are emission centers contained in the phosphor.

67. The light source of Claim 64,

wherein the phosphor containing the trivalent europium as an emission center and having an emission peak at a wavelength range of 600nm to 620nm is composed of at least one of:

$Y_2O_3:Eu^{3+}$; and

$Gd_2O_3:Eu^{3+}$

wherein compounds on the left side denote host crystals, and ions on the right side are emission centers contained in the phosphors.

68. A luminaire, being characterized by:

emitting light whose whiteness is no smaller than 85 and whose visual clarity index is no smaller than 110, the whiteness W being calculated using chroma C of the light and an equation (15),

$$W = -5.3C + 100 \quad \cdots (15)$$

wherein the chroma C is calculated using a method defined by the CIE 1997 Interim Color Appearance Model(Simple Version)

69. The luminaire of Claim 68,

wherein the light source is a fluorescent lamp containing a phosphor layer, the light source emitting light whose peak emissions are in four wavelength ranges of 440nm to 470nm, 505nm to 530nm, 540nm to 570nm, and 600nm to 620nm; and

wherein a ratio of a radiant energy Qv to a radiant energy Qg satisfies an inequality (16) for a correlated color temperature T[K]

$$Qg/Qv \geqq -0.11 \times 10^4/T + 0.30 \quad \cdots (16)$$

wherein the radiant energy Qv is in a wavelength of 380nm to 780nm and radiant energy Qg in a wavelength of 505nm to 530nm.

70. The luminaire of Claim 68,

wherein the light from the light source is adjusted

to a specified spectrum after passing through the translucent cover.

71. The luminaire of Claim 68,

wherein the light from the light source is adjusted to a specified spectrum after reflected from the reflector.

72. A luminaire, being characterized by:

emitting light whose whiteness W is no smaller than 85, and whose visual clarity index is no smaller than 115, the whiteness W being calculated using chroma C of the light and an equation(17)

$$W = -5.3C + 100 \cdots (17)$$

wherein the chroma C is calculated using a method defined by the CIE 1997 Interim Color Appearance Model (Simple Version).

73. The luminaire of Claim 72,

wherein the light source is a fluorescent lamp containing a phosphor layer, the light source emitting light whose peak emissions are in four wavelength ranges of 440nm to 470nm, 505nm to 530nm, 540nm to 570nm, and 600nm to 620nm; and

wherein a ratio of a radiant energy Qv to a radiant energy Qg satisfies an inequality (18) for a correlated color temperature T[K]

$$Qg/Qv \geqq -0.11\times10^{4}/T+0.30 \quad \cdots (18)$$

wherein the radiant energy Qv is in a wavelength of 380nm to 780nm and radiant energy Qg in a wavelength of 505nm to 530nm.

74. The luminaire of Claim 72,

wherein the light from the light source is adjusted to a specified spectrum after passing through the translucent cover.

75. The luminaire of Claim 72,

wherein the light from the light source is adjusted to a specified spectrum after reflected from the reflector.

76. A luminaire, being characterized by:

emitting light whose whiteness is no smaller than 65 obtained when the light is reflected from a blank surface of a newspaper, the whiteness being calculated using chroma C of the light and an equation (19),

$$W = -3.3C + 100 \quad \cdots (19)$$

wherein the chroma C is calculated using a method defined by the CIE 1997 Interim Color Appearance Model (Simple Version);

emitting light whose chromaticity is, on the CIE 1931 chromaticity diagram, in a range expressed by two equations (20) and (21); and

emitting light whose visual clarity index is no smaller than 110:

$$y \geqq -2.63x^2 + 2.63x - 0.263 \quad \cdots (20)$$

$$y \geqq 3.09x + 1.22 \quad \cdots (21).$$

77. The luminaire of Claim 76,

wherein the light source is a fluorescent lamp containing a phosphor layer, the light source emitting light whose peak emissions are in four wavelength ranges of 440nm to 470nm, 505nm to 530nm, 540nm to 570nm, and 600nm to 620nm; and

wherein a ratio of a radiant energy Qv to a radiant energy Qg satisfy an inequality (22) for a correlated color temperature T[K]

$$Qg/Qv \geqq -0.11 \times 10^4/T + 0.30 \quad \cdots (22)$$

wherein the radiant energy Qv is in a wavelength of 380nm to 780nm and radiant energy Qg in a wavelength of 505nm to 530nm.

78. The luminaire of Claim 76,

wherein the light from the light source is adjusted to a specified spectrum after passing through the translucent cover.

79. The luminaire of Claim 76,

wherein the light from the light source is adjusted to

a specified spectrum after reflected from the reflector.

80. A luminaire, being characterized by:

emitting light whose whiteness W is no smaller than 65 when the light is reflected from a blank surface of a newspaper, the whiteness W being calculated using chroma C of the light and an equation (23),

$$W = -3.3C + 100 \quad \cdots (23)$$

wherein the chroma C is calculated using a method defined by the CIE 1997 Interim Color Appearance Model (Simple Version);

emitting light whose chromaticity is, on the CIE 1931 chromaticity diagram, in a range expressed by two equations (24) and (25); and

emitting light whose visual clarity index is no smaller than 115:

$$y \geqq -2.63x^2 + 2.63x - 0.263 \quad \cdots (24)$$

$$y \geqq -3.09x + 1.22 \quad \cdots (25).$$

81. The luminaire of Claim 80,

wherein the light source is a fluorescent lamp containing a phosphor layer, the light source emitting light whose peak emissions are in four wavelength ranges of 440nm to 470nm, 505nm to 530nm, 540nm to 570nm, and 600nm to 620nm; and

wherein a ratio of a radiant energy Qv to a radiant energy Qg satisfy an inequality (26) for a correlated color

temperature T[K]

$$Qg/Qv \geqq -0.11\times10^{4}/T+0.30 \quad \cdots (26)$$

wherein the radiant energy Qv is in a wavelength of 380nm to 780nm and radiant energy Qg in a wavelength of 505nm to 530nm.

82. The luminaire of Claim 80,

wherein the light from the light source is adjusted to a specified spectrum after passing through the translucent cover.

83. The luminaire of Claim 80,

wherein the light from the light source is adjusted to a specified spectrum after reflected from the reflector.